

# AUSTRALIAN BIODIVERSITY RECORD

---

2002 (No 1)

ISSN 1325-2992

February, 2002

---

## A New Subspecies of *Carettochelys* (Reptilia: *Carettochelydidae*) from Northern Australia - *Carettochelys insculpta canni* ssp. nov.

by

Richard W. Wells

"Shiralee", Major West Road, Cowra, New South Wales, Australia

*Carettochelys insculpta canni* Ssp. Nov.

Holotype: Northern Territory Museum R1213. Caught on fishing line by John Edwards, near Ooloo Crossing, Daly River, Northern Territory on 1 September, 1975.

Diagnosis: A large turtle of the family *Carettochelydidae* readily identified by the following combination of characters: head and neck vertically retractable beneath carapace; nostrils large, positioned at tip of a soft extended snout; limbs paddle-shaped, each with only two claws; mature carapace with a posterior vertebral ridge and the surface of the carapace is without horny plates; carapace extensively pitted with small depressions and covered with a thin fragile skin; plastron much smaller than carapace; juveniles have distinct vertebral keeling and serrated edges to the carapace. In mature specimens, the carapace has scattered patches of pale creamish-white on a greyish or olive base, and the dorsal skin colour greyish, but the ventral skin is whitish. There is a distinctive whitish temporal patch behind the eye that extends in a broken pattern to the lower neck. Juveniles are steely-grey dorsally, with the rim of the carapace strongly contrasting with white, as is the entire undersurface. In size, *Carettochelys insculpta canni* is not as large as the nominate population (about 50 cm carapace length and about 30 cm in width versus about 80 cm in length and 60 cm in width in the nominate form) and both the eggs and hatchlings are much smaller in *C. i. canni*. The overall appearance of this turtle is heavy-bodied, and indeed it may reach 10-15 kg in weight (although the nominate form can reach around 25 kg in weight). This subspecies is only known from the far north of the Northern Territory in Australia, being confined to the Victoria River, Daly River and Alligator River systems. It is also considered likely that the subspecies occurs in the Roper River system as well. The nominate form is restricted to southern Papua New Guinea. This subspecies is confined to freshwater conditions of large tropical rivers, favouring Dry Season depths of around 1 to 5 metres, but during the Wet Season water depths in their habitat can reach around 15 metres. Unlike the nominate form, *Carettochelys insculpta canni* is not known to populate saltwater or even

brackish water conditions. This turtle prefers sandy stretches of rivers and when not active, remains largely hidden beneath the sand on the bottom with only the head and parts of the carapace exposed. It mainly forages around patches of aquatic vegetation, as well as near the overhanging banks, and will retreat underneath bank cavities or under submerged logs when disturbed, or attempt escape by rapidly swimming off into deeper open waters. Mating has been recorded during June and probably occurs throughout much of the Dry Season (April-September). Nesting occurs from June to late November, when eggs are laid in sandy banks around 0.5 to 5.0 m. above the water's edge. A typical egg-chamber is dug into slightly sloping or level sandy river banks, and is around 20 cm deep. From 7-19 eggs are produced in a clutch, with each egg being white and circular in shape. The incubation period is around 70 days at 30°C and hatching coincides with the onset of the Wet Season so incubation times may vary in accordance with site conditions and weather patterns. Males reach sexual maturity when around 300 mm carapace length (at age 14-16 years), but females mature more slowly (sexual maturity is reached at a carapace length of about 300 mm to 340 mm - at age 20-22 years). Although omnivorous in dietary habits, it feeds mainly on aquatic plants, such as *Vallisneria spiralis*, as well as the fruits of *Ficus* and *Pandanus* that fall into the water. Invertebrates are also significant as prey items - such as small molluscs, freshwater prawns, and numerous kinds of both terrestrial and aquatic insects and their larvae. Carrion is also readily taken in some parts of its range.

**Etymology:** The name 'insculpta' means 'carved', and probably refers to pitted nature of the carapace; the name 'canni' honours Australian naturalist John Cann.

#### **Acknowledgements**

Thanks are due to Graeme Gow past curator of vertebrates at the Northern Territory Museum in Darwin for allowing me to examine specimens of *Carettochelys*, including the Type specimen under his care in 1977. Dr H.G. Cogger of the Australian Museum in Sydney allowed access to the turtle collection in 1981 where I was able to examine material from Papua New Guinea as well as obtain data on the Holotype of *Carettochelys insculpta*. Additionally field work along the Daly, Adelaide, Mary, Roper, Finnis, East and West Alligator Rivers in the Northern Territory was only possible through financial assistance from the NTM in 1977 thanks to the generous support of Dr Colin Jack-Hinton and Graeme Gow. John Edwards kindly assisted me with information on the Type Locality and details of the circumstances of his discovery of *Carettochelys* in the Daly River. I would also like to express my appreciation to the librarians of Northern Territory State Reference Library, Macquarie University, the University of New South Wales and Sydney University for the generous assistance in obtaining many of the references cited herein. It should be noted that much of the biological data on the Australian population has been considered from the available published literature on the species, but I should add that none of the publications concerning this species consider the Australian population as taxonomically distinct from the New Guinea population. Such a conclusion has resulted from my own personal interpretation of the data and readers are advised to obtain the cited articles and examined specimens of both populations and draw their own conclusions. Lastly, I would like to thank John Cann for information on both the Papua-New Guinea and Australian populations and Dr Graham Wells for many long discussions on the ecological conditions of Australia's tropical river systems.

## References

- Baur, G. 1891 On the relations of *Carettochelys*, Ramsay. American Naturalist, 25: 631-639
- Baur, G. 1891 The very peculiar tortoise, *Carettochelys* Ramsay, from New Guinea. Science, 17: 190
- Blair, D. and Rose, M.M. 1986 *Paradeuterobaris novaeguineae* n. gen. and n. sp. (Digenea: Microscaphidiidae) from the intestine of *Carettochelys insculpta* (Reptilia: Chelonia) from Papua New Guinea. Journal of Parasitology, 72 (2): 232-235
- Boulenger, G.A. 1889 Catalogue of the Chelonians, Rhynchocephalians, and Crocodiles in the British Museum (Natural History). New Edition. British Museum, London [Pp. i-x, 1-311]
- Boulenger, G.A. 1898 Exhibition of, and remarks upon, a dancing-stick from New Guinea to which two skulls of the Chelonian *Carettochelys insculpta* were attached. Proceedings of the Zoological Society of London, 1898: 851
- Cann, J. 1974 Collecting in Irian Jaya during 1972. Bulletin of Herpetology [Royal Zoological Society of New South Wales], 1 (3): 4-14
- Cann, J. 1978 Tortoises of Australia. Angus and Robertson, London [Pp. 1-79 + 92 Plates]
- Cann, J. 1998 Australian Freshwater Turtles. Author and Beaumont Publishing, Singapore [Pp. 292]
- Cogger, H.G. 1970 First record of the Pitted-shelled Turtle, *Carettochelys insculpta*, from Australia. Search, 1: 41 [See also Peters, U. (1970) which actually predates this article, but see also Worrell, E. Song of the Snake (1958)]
- Cogger, H.G. 1972 Turtles and Tortoises. [Pp. 1049-1051]. In: Ryan, P.A. (General Editor): Encyclopaedia of Papua and New Guinea. Volume 2. Melbourne University Press, Melbourne
- Cogger, H.G. 1972 Australian Reptiles in Colour. Reed, Sydney ['Revised' Edition; Pp. 1-112]
- Cogger, H.G. 1974 Wildlife. [Pp. 1-16]. In: Alligator Rivers Region Environmental Fact-finding Study
- Cogger, H.G. 1974 Amphibians and Reptiles. Review of the Alligator Rivers Region Environmental Fact-finding Study, Darwin [Summary; Restricted distribution]
- Cogger, H.G. 1975 Reptiles and Amphibians of Australia. Reed, Sydney [1st Edition]

- Cogger, H.G. 1979 Type specimens of reptiles and amphibians in the Australian Museum.. Records of the Australian Museum, 32: 164-210
- Cogger, H.G. 1979 Reptiles and Amphibians of Australia. Reed, Sydney [2nd Edition]
- Cogger, H.G. 1981 A biogeographic study of the Arnhem Land herpetofauna. [Pp. 148-155]. In: Banks, C.B. and Martin, A.A. (Editors): Proceedings of the Melbourne Herpetological Symposium. Zoological Board of Victoria, Melbourne
- Cogger, H.G. 1983 Reptiles and Amphibians of Australia. Reed, Sydney [3rd Edition]
- Cogger, H.G. 1986 Reptiles and Amphibians of Australia. Reed, Sydney [4th Edition; Pp. 1-688]
- Cogger, H.G. 1988 Reptiles and Amphibians of Australia. Reed, Sydney [A reprinting, but due to changes, should be regarded as a 5th Edition]
- Cogger, H.G. 1992 Reptiles and Amphibians of Australia. Reed, Sydney [6th Edition]
- Cogger, H.G. 1994 Reptiles and Amphibians of Australia. Reed, Sydney [7th Edition - another substantially altered edition that included an updated Appendix of recently described taxa]
- Cogger, H.G. 1996 Reptiles and Amphibians of Australia. Reed, Sydney [8th Edition]
- Cogger, H.G. 2000 Reptiles and Amphibians of Australia. New Holland, Sydney [9th Edition]
- Cogger, H.G. and Heatwole, H.F. 1981 The Australian reptiles: Origins, biogeography, distribution patterns and island evolution. [Pp. 1331-1373] In: Keast, A. (Editor): Ecological Biogeography of Australia. Junk, The Hague [Monographiae Biologicae, Volume 41]
- Cogger, H.G. and Heatwole, H.F. 1984 The Australian reptiles: Origins, biogeography, distribution patterns and island evolution. [Pp. 343-370]. In: Archer, M.A. and Clayton, G. (Editors): Vertebrate Zoogeography and Evolution in Australia. (Animals in Space Time). Hesperian Press, Carlisle [Republication of Cogger, H.G. and Heatwole, H. (1981)]
- Cogger, H.G., Cameron, E.E. and Cogger, H.M. 1983 Zoological Catalogue of Australia. Volume 1. Amphibia and Reptilia. Australian Government Publishing Service, Canberra [Pp. i-vi, 1-313]
- Cogger, H.G., Cameron, E.E., Sadlier, R.A. and Eggler, P. 1993 The Action Plan for Australian Reptiles. Australian Nature Conservation Agency [Canberra], Endangered Species Program, Project No 124 [Pp. 1-254]
- Dupe, K.V. 1980 The Pitted-shelled Turtle *Carettochelys insculpta* in the Northern

Territory. Northern Territory Naturalist, 1 (3): 14

Friar, W. 1985 The enigmatic plateless river turtle, *Carettochelys*, in serologic survey. Journal of Herpetology, 19 (4): 515-523

Georges, A. 1987 The Pig-nosed Turtle - Warradjan. Australian Natural History, 22 (5): 230-234

Georges, A. 1988 The Warradjan, *Carettochelys insculpta* Ramsay (Testudinata: Carettochelydidae): A literature review and annotated bibliography. Report to Australian National Parks and Wildlife Service, Canberra [February, 1988; later published by Water Research Centre]

Georges, A. 1990 Management of the Pig-nosed turtle in northern Australia. Australian Ranger Bulletin, 5 (4): 32-35

Georges, A. 1990 The Pig-nosed Turtle in Kakadu National Park - A Submission to the Kakadu Conservation Zone Enquiry. Resource Assessment Commission, Canberra [Submission No KA90/59]

Georges, A. 1992 Thermal characteristics and sex determination in field nests of the Pig-nosed Turtle *Carettochelys insculpta* (Chelonia: Carettochelydidae) from northern Australia. Australian Journal of Zoology, 40 (5): 511-521

Georges, A. and Kennett, R. 1989 Dry-season distribution and ecology of *Carettochelys insculpta* (Chelonia: Carettochelydidae) in Kakadu National Park, northern Australia. Australian Wildlife Research, 16: 323-335

Georges, A. and Rose, M.R. 1993 Conservation biology of the Pig-nosed Turtle, *Carettochelys insculpta*. Chelonian Conservation Biology, 1 (1): 3-12

Georges, A., Choquenot, D., Coventry, A.J. and Wellings, P. 1989 Some observations on the Pig-nosed Turtle (*Carettochelys insculpta*) in northern Australia. Northern Territory Naturalist, No 11: 8-11

Glaessner, M.F. 1942 The occurrence of the New Guinea turtle (*Carettochelys*) in the Miocene of Papua. Records of the Australian Museum, 21 (2): 106-109

Heaphy, L.L. 1990 The Ecology of the Pignosed Turtle *Carettochelys insculpta*, in Northern Australia. PhD Thesis, University of New South Wales, Kensington

Peters, U.W. 1970 Die Papua-Schildkrote (*Carettochelys insculpta*) in Australien ! Das Aquarien und Terrarien Zeitschrift, 23 (6): 182-183 [First published record for Australia - although see Worrell, 1958]

Pritchard, P.C.H. 1979 Encyclopedia of Turtles. TFH Publications, Neptune City, New Jersey (USA)

Ramsay, E.P. 1886 On a new genus and species of fresh water tortoise from the Fly River, New Guinea. Proceedings of the Linnean Society of New South Wales, (2) 1: 158-162

Rose, M.R., Parker, F. and Rhodin, A.G.J. 1982 New Guinea Plateless Turtle or Pitted Shell Turtle (Fly River or Pig-nosed Turtle), *Carettochelys insculpta* Ramsay 1886. [Pp. 243-246]. In: Groombridge, B. (Editor): The IUCN Amphibia-Reptilia Red Data Book, Part 1. Testudines, Crocodylia, Rhynchocephalia. International Union for the Conservation of Nature and Natural Resources, Gland (Switzerland)

Schodde, R., Mason, I.J. and Wolfe, T.O. 1972 Further records of the Pitted-shelled Turtle (*Carettochelys insculpta*) from Australia. Transactions of the Royal Society of South Australia, 96 (2): 115-117

Versluys, J. 1922 Eine lebende Anosteiride, *Carettochelys insculpta* Ramsay. Palaeontologische Zeitschrift [Berlin], 5: 97-99

Waite, E.R. 1905 The osteology of the New Guinea turtle (*Carettochelys insculpta* Ramsay). Records of the Australian Museum, 6 (2): 110-118

Walther, W.G. 1922 Die Neuguinea-Schildkröte *Carettochelys insculpta* Ramsay. Nova Guinea (Zoologie), 13: 607-704 [see also translation of this work in Meylan (1987)]

Webb, G.J.W., Choquenot, D. and Whitehead, P.J. 1986 Nests, eggs, and embryonic development of *Carettochelys insculpta* (Chelonia: Carettochelydidae) from northern Australia. Journal of Zoology (B) [London], 1 (3): 521-550

Wells, R.W. and Wellington, C.R. 1984 Synopsis of the Class Reptilia in Australia. Australian Journal of Herpetology, 1 (3-4): 63-129

Wells, R.W. and Wellington, C.R. 1985 A Classification of the Amphibia and Reptilia in Australia. Australian Journal of Herpetology (Supplementary Series), No 1: 1-61

Wermuth, H. 1963 Die Papua-Weichschildkröte, *Carettochelys insculpta* Ramsay. Das Aquarien und Terrarien Zeitschrift, 16: 341-343

Wermuth, H. and Mertens, R. 1961 Schildkröten, Krokodile, Bruckenechsen. Gustav Fischer, Jena [Pp. 1-422]

Wermuth, H. and Mertens, R. 1977 Liste der rezenten Amphibien und Reptilien; Testudines, Crocodylia, Rhynchocephalia. Das Tierreich, 100: i-xxvii, 1-174

Winokur, R.M. 1982 Erectile tissue and smooth muscle in snouts of *Carettochelys insculpta*, Trionychids and other Chelonia. Zoomorphology, 101: 83-93

Worrell, E. 1958 Song of the Snake. Angus and Robertson, Sydney [Pp. Pp. i-xii +

1-210]

Zangerl, R. 1959 Rudimentare Carapaxbeschuppung bei jungen Exemplaren von *Carettochelys* und ihre morphogenetische Bedeutung. Vierteljahrsschr. Naturf. Gesellschaft [Zurich], 104: 138-147 [see Meylan et al (1987) for translation]

[Note: Although the above references are only a selection of articles that refer to *Carettochelys insculpta*, I have tried to include those that I thought contained the most relevant biological data on the species. However, a much more extensive bibliography on *Carettochelys* may be obtained from the author if required].

\*\*\*\*\*

The Australian Biodiversity Record is published at no cost for permanent scientific record in accordance with the International Commission of Zoological Nomenclature Rules (Code 4th Edition). Copies may be obtained from "Shiralee", Major West Road, Cowra, NSW Australia. This publication may be freely copied by any person and distributed worldwide by any means whatsoever.

---